MEDICAL SURVEY REPORT TO THE UNITED NATIONS' GROUP ON THE STATUS OF THE RONGELAP PEOPLE
Majuro, M. I., March 1956

On March 1, 1954, following experimental detonation of a thermonuclear device in the Pacific, several inhabited islands were accidentally irradiated with fallout. This was the same accident in which the Japanese fisherman were irradiated. The fallout material, a white powdery material, fell most heavily on Rongelap atoll, about 100 miles from the detonation and to a lesser extent on islands further away. The people on these islands were irradiated from the fallout by three routes: 1. Penetrating radiation (gamma) from the ground, trees and houses, resulted in whole body irradiation; 2. Skin contamination, with fallout resulted in spotty localized irradiation of the skin and scalp; and 3. Internal contamination occurred from ingesting of contaminated food and breathing in fallout material. The island groups and extent of involvement was as follows:

GROUP	PERSONS INVOLVED	ESTIMATED PENETRATING DOSE	DEGREE OF SKIN CONTAMINATION
Rongelap	64 Marshallese	175 roentgens	Extensive
Rongelap people on Ailingnae	18 Marshallese	69 roentgens	Less extensive
Rongerik	28 Americans	78 roentgens	Slight
Utirik	157 Marshallese	14 roentgens	None (measurable)

The above people were all evacuated to Kwajalein where they were cared for and studied extensively for several months. The Utirik people who had only the most minimal signs (blood effects) of radiation effects were moved back to their homes on Utirik. The American servicement who also showed only minimal effects were returned to duty shortly afterward. The more heavily exposed Rongelap people were moved to Ejit Island in Majuro Atoll for further care and study. The following facts concern this latter group.

About 2/3 of the Rongelap group experienced nausea during the first 24-48 hours after the detonation and a few vomited and had diarrhea which was believed due to the penetrating radiation exposure. A large number experienced itching and burning of the skin, and a few of the eyes, which was believed due to the irradiation of the skin. Following this, the people were free of any complaints until about 2 weeks later when skin lesions developed. The results of the three types of radiation were as follows:

1. Penetrating - (175 roentgens - a chest x-ray gives about 4-6 roentgens). Effects were manifest only on the blood elements as follows:
   (a) White Blood Cells (which protect the body against infection) were depressed to about 50% of normal by about the 6th week.
   (b) Platelets (which keep the body from bleeding spontaneously) were depressed to about 30% of normal by the 4th week. These blood elements have gradually recovered to normal range at subsequent studies at 6 months, 1 year and 2 years.

2. Skin Contamination - resulted in spotty loss of hair and skin lesions beginning 2 wks. after exposure. About 90% of the children lost hair to some degree and about 30% of the adults. 90% developed skin lesions of spotty distribution over the exposed parts of the body not covered by clothing. The majority of the skin lesions were superficial and were no worse than a sunburn with the outer skin peeling away. They healed and repigmented rapidly. About 20% of the people developed deeper lesions which became weeping ulcers. However, even these healed rapidly, but a few show some scarring and lack of repigmentation to present. The hair began regrowing about 3 months after exposure and by six months was completely regrown in all cases.

3. Internal Contamination - Radiochemical studies of urine samples showed some degree of internal absorption of radioactive materials. However, the total body burden was found to be below the "tolerance" levels that have been established. By 6 months, insignificant amounts could be detected.

Other than the skin lesions, loss of hair and early symptoms there have been no illnesses or disease processes that have been encountered which could be attributed to radiation effects, either during the first survey or subsequent resurveys. There have been no deaths, though many of the people are quite old. The diseases encountered have been no more severe or frequent than in the unirradiated population. This was true even during the period when the greatest depression of their blood cells occurred. For instance, at that time an epidemic of common colds occurred, but was no worse in the Rongelap people compared to others. Therefore, at no time has it been necessary to resort to any specialized treatment for radiation effects on the blood such as use of prophylactic antibiotics, blood transfusions, etc. However, careful consideration and treatment has been given to all conditions which needed attention. The skin lesions did require careful treatment and as a result we have been rewarded with little or no secondary infection of these lesions. We cannot be certain that cancer will not develop at the site of skin lesions, but it does not seem too likely at this time.

Fertility did not appear to have been effected in view of the fact that about 10 sound babies have been born in the group since the exposure and new pregnancies are in evidence.

The people have reacted to this event philosophically. They are an intelligent and charming people and have given us the highest degree of cooperation. There is mutual respect and affection between us. They appear to be comfortably quartered and well fed on Ejit Island. They, of course, wish to return to their homes on Rongelap. It is my understanding that the only thing that has delayed their return is the completion of surveys of their home islands by the AEC to be certain that the islands are safe.

Respectfully submitted,

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